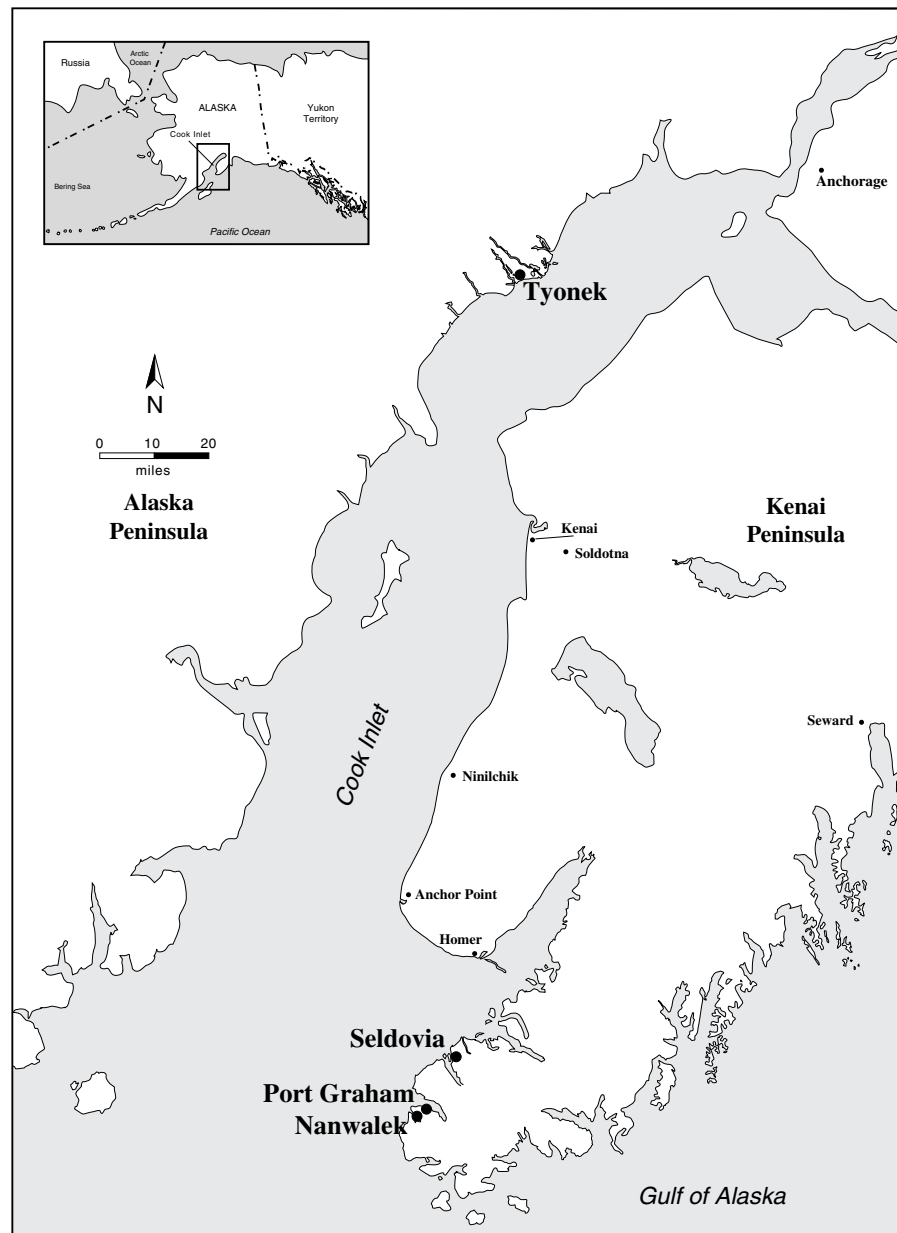


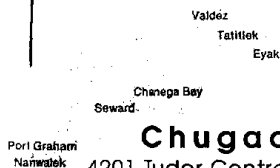


# Appendix A

## Tribal Needs Letter & notes



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# Nunagpet

## Chugachmiut Environmental Protection Consortium

4201 Tudor Centre Drive, Suite 210, Anchorage, Alaska 99508 (907) 562-4155 • Fax (907) 563-2891

September 20, 1999

Mr. Jeffrey D. Bigler  
U.S. Environmental Protection Agency  
Waterside Mall (WSM)  
401 M Street SW, Room E925  
MC 4305  
Washington, DC 20460

Dear Mr. Bigler:

After reviewing the data from your preliminary subsistence study results, we are concerned about many of the chemical concentrations that were detected for many of the various subsistence species that were sampled. In your preliminary study report, the only risks identified were related to substances that are known to be carcinogenic. Even those were only looked at as individual chemical substances and only reviewed as to how many meals could be consumed in a given month.

The concern here is that when we eat subsistence foods, we do not just eat one chemical, we eat the whole fish or organism with all of the chemical contaminants in that portion of food. We also eat many of the other species sampled and usually eat several different species in any given month. So it seems we would be ingesting the total pollutants of these different species combined. We need to know more precisely what the risks are from our normal subsistence diet in relation to the chemical concentrations reported in the study and not just from the carcinogenic standpoint.

We would like to see a much more detailed review of this data by a highly qualified marine toxicologist. It is important for the marine toxicologists and other professionals to thoroughly review and understand our normal dietary patterns of these subsistence species. We would like to have comprehensive risk analysis performed, based on the actual separate and combined amounts consumed as well as bio-accumulation and possible synergistic affects.

For example, using the data from ADF&G Data (Technical Paper #104, May 1981 to April 1982), if the average person consumed 76.5 pounds of salmon per year (6.35 lbs. per month). The same data also indicates that the average Port Graham and Nanwalek

Promoting a Healthy Environment for the Chugach Region

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resident consumes 31.15 pounds of flat fish ( mostly halibut), 8.35 pounds of fresh water fish (trout), 4.75 pounds of other saltwater fish (cod and sea bass), 1.15 pounds of clams, .9 pounds of crab and 2.5 pounds of other invertebrates (mostly chiton) per year. In a given month an average village resident might eat 3 pounds of sockeye, 2 pounds of king and 1.35 pounds of pink salmon, 2 pounds of halibut, .6 pounds of flounder, .1 pounds of clams, .08 pounds of crab, .15 pounds of chiton, .06 pounds of snail, .05 pounds of goose tongue, .04 pounds of rock kelp and .04 pounds of sea weed.

What we need to know is given realistic consumption levels and the observed contaminants in the food:

- What amounts of these chemicals are being ingested (both individually and combined by group)?
- What are the possible effects, risks and concerns from the combined levels of these chemicals?
- What is the half lives and effects of digestion and metabolism of these chemicals?
- Which chemicals are likely to bio-accumulate?
- What are the possible risks and concerns from synergistic and accumulative effects?
- What are the known toxic effects of these chemicals (acute and chronic)?

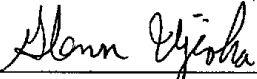
Additional calculations and analysis are necessary to address the fact that many people eat a higher percentage of these subsistence foods during the summer when they are fresh and during Lent before Christmas and for 40 days during Easter (traditionally eat only subsistence foods). There are also some village residents and elders that eat a higher percentage of these foods than the average village resident. We would like to know what there risk is as well.

While we very much appreciate the work that has gone into this subsistence foods study, we need a much more comprehensive risk analysis to determine what is safe for us to eat and what would become a risk if we ate certain combinations and amounts of the various species. We also need to start figuring out where these pollution sources are coming from that are getting into our important subsistence foods that we depend on and how we might start thinking about ways to minimize, if not eliminate these pollutants from coming into contact with our traditional subsistence foods. We realize there are some very large and complex global pollution sources. We would like to identify sources from Cook Inlet or nearby Alaskan areas. After these are identified, we hope to work towards an annual spring clean up of pollutants, however, recognizing that it may take many years to do. We feel it will be well worth the effort to try and minimize pollutants coming into our area.

We would like to meet on this very important issue this fall to discuss how our concerns can be adequately addressed. We would like to discuss some ideas that many of us have had with this study, including adding some additional sampling of other subsistence

species such as pink salmon and winter kings and possibly adopting a stratified sampling program that would be continued for a couple years. Please let us know as soon as possible when you and hopefully a marine toxicologist might be available for this meeting.

Sincerely,

  
For NUNAGPET, Chairperson  
Chugachmiut Environmental Protection Consortium


9-21-99  
Date

  
For Port Graham Village Council Chief

10-5-99  
Date

  
For Nanwalek I.R.A. Council President

10-12-99  
Date

  
For Port Graham/Nanwalek Watershed Council  
Co-Chairperson

10-5-99  
Date

CC: Chuck Clarke, Regional Administrator  
EPA Region 10 Office

Rick Albright, Director  
EPA Alaska Operations Office

Scott Sufficool, Director  
EPA Region 10 Tribal Office

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## TRIBAL PREFACE (prepared in 2003)

This Tribal Preface address's the concerns of the four Cook Inlet Tribes (Port Graham, Nanwalek, Seldovia, and Tyonek, hereafter ***Tribes***) involved in the Environmental Protection Agency Cook Inlet Contaminant Study document entitled "Human Health Risk Assessment of Chemical Contaminants". The Tribal Preface will also point out suggested changes and areas needing additional work or unanswered questions. One suggested change for the document is the title, to read, "Reconnaissance Survey of Contaminants in the Cook Inlet". This suggested title appropriately describes the contents of this study. We hope to convey to anyone reading this study that we, the Tribal participants, have put a tremendous amount of work into creating this report with the Environmental Protection Agency (EPA). We have many unresolved concerns both with this report and the larger issues of contaminants showing up in our food. The concerns extend to sources, pathways and location of the identified contaminants. The Tribes have sought technical review and advice from several consultants regarding our concerns. The consensus opinion is in concurrence with our stated concerns and an opinion that these concerns warrant further consideration. A contribution of a Tribal Preface is provided so that we can point out suggested changes, areas in need of additional work and to highlight some of the many unanswered questions.

We would like to disclose that the executive summary of the report, under the Study Identification section, suggests that USEPA began a study of chemical contaminants found in traditional foods in Cook Inlet under its own accord. The fact is, the study is the results of an appeal of the final State of Alaska, Alaska Coastal Management Plan (ACMP) consistency determination for the reissuance of the Cook Inlet National Pollutant Discharge Elimination System (NPDES) general permit for oil and gas activities. The appellants included the Alaskan Tribal Villages of Port Graham and Nanwalek, along with environmental conservation based groups. The Alaska State Superior Court decision found the record incomplete in regard to consideration of the ACMP habitat standard and the ACMP subsistence standard. The court remanded the final consistency finding for additional findings, "in accord with the study of the possible adverse impact of the proposed potentially conflicting use or activity, discharge of contaminants, upon subsistence usage in the subject Port Graham and Nanwalek AMSA (Area Meriting Special Attention). EPA initiated the Cook Inlet Contaminant Study as a result of the court remand of the final consistency finding.

The EPA Cook Inlet Contaminant Study is designed to provide information to determine whether Tribal traditional subsistence resources are being adversely impacted by oil and gas industry discharges allowed under the general Cook Inlet NPDES permit. The EPA conducted the study to determine potential human health risks of subsistence diets of four Villages of Port Graham, Nanwalek, Seldovia, and Tyonek. It clearly states in the Executive Summary, "While the heavy metals have been found in the waste streams of the oil and gas industry, **it is uncertain to what extent**, if any, the activity of the industry has had on the levels of chemicals detected in biotic tissue in the area." The Tribes are concerned with the decisions of the federal and state agencies to renew the NPDES general permit based on "an uncertainty" of the extent the activity of industry has had on levels of chemicals detected. While the contaminant levels are not as high as

some polluted areas such as the Great Lakes Region in the US, the data shows clear evidence of significant contamination in virtually all of the Traditional subsistence species sampled.

There is a potential health risk present based on the reality of the high levels of mixed diet consumption of the traditional subsistence way-of-life. Clearly additional research is needed before actual risk can be evaluated. The Tribes are apprehensive about the use of survey data from the 1997/1998 State of Alaska Department of Fish and Game (ADF&G) survey data to calculate consumption rates in this study. The data assumes an average of 172 lbs of a target species are consumed per person annually. The Tribes maintain that the ADF&G survey data are conservative numbers given to ADF&G for fear that true harvest data numbers may inhibit the ability of Tribes to harvest and gather traditional subsistence resources in a manner to which we are accustomed. Each Tribe may accurately determine consumption levels of traditional foods for and by its people. Only then will these numbers present a reliable account of consumption.

The Tribes have concerns regarding *lack of* Government-to-Government Tribal Consultation with the Cook Inlet Tribes in every phase of the research project. Our understanding of the study design was to provide information concerning whether or not local Tribal subsistence resources are being adversely impacted, specifically by Cook Inlet oil & gas industry discharges. The Tribes also understood the study and associated report was attempting to define human health risks associated with exposure to contaminants in seafood harvested by subsistence consumers. The Cook Inlet Tribes feel their initial participation was only in “**Tokenism**” to satisfy agency and industry involved in this study.

Additionally and most importantly, we are very concerned with the State of Alaska’s Division of Governmental Coordination’s consistency determination and decision to allow the renewal of the NPDES permit. This decision was based on raw data resulting from the study released without any scientific evaluation or Tribal consultation on the matter. The simple truth is that the study revealed a cause for concern that demands follow up studies and a source analysis. The Tribes are aware that EPA risk assessment protocols call for follow up research when Tier One and/or Tier Two studies show contaminant levels of concern which was clearly the case in this study.

It is with great sadness and frustration that the Cook Inlet Tribes participating in this study have often been side stepped with our concerns minimized and/or ignored. We urge for more contaminant sampling and, an actual human health risk assessment. A source analysis of the metals and PAH’s found in our traditional foods may indeed originate from or be exacerbated by the Cook Inlet oil and gas industry discharges and warrants additional research. We seek to know if our health is at risk from contaminants in our traditional foods and where the chemicals are coming from so that we can proactively strive to reduce, if not eliminate contaminants from our foods. The answers to these questions are imperative to the future of our traditional lifestyle and culture, our children and the seven generations to come. The environment can exist without us but we cannot exist without our environment.



**RECOMMENDATIONS AND INFORMATION COLLECTED DURING TELEPHONE  
CONFERENCE CALLS (5 pages)  
(15Feb, 22Feb, 29Feb, 7Mar, 17Mar 2000 with Roseanne Lorenzana/R10-EPA)**

**SPECIAL GROUPS OF INTEREST:**

Pregnant woman (due to bioaccumulation and transfer to the fetus). There is concern about whether these a particularly high level of transfer of contaminants from the mother to the first-born infant.

Breast-feeding infants and mothers.

Children ages birth through twelve years old.

Elders (that is, both men and women aged 55 and older). There is particular concern about those with existing adverse health conditions such as diabetes which seems higher in this group.

**SPECIAL CONCERNS and QUESTIONS:**

From this report, Tribes would like to gain more information regarding Cook Inlet sources (for example, point sources) of contaminants in subsistence harvest foods.

Specific follow up is needed for the “red flags” raised by Jeff Bigler during the October 1998 presentations. These regarded dieldrin and cadmium. Information is wanted regarding what is known, don’t just say “we don’t know” or “it’s uncertain”. Say what is meant by describing something as a “red flag”.

Fish is eaten, not individual chemicals; therefore, information is needed regarding exposures to the entire mix of contaminants in the fish. Information regarding both additive and synergistic effects is needed. To the extent possible, give a quantitative estimate and explain what that means. Qualitative (descriptive) information should also be provided. Discuss what the scientific community knows, doesn’t know and where there are concerns.

People from Nanwalek and Port Graham helped to collect samples, but noticed differences between samples collected and the types of foods collected for subsistence. How would these differences affect the interpretation of the resulting data? Here are examples:

Samples were collected between the end of May and the beginning of June. In contrast, foods are collected year-round.

Samples were composited.

The entire fish was ground up and analyzed.

It was early in the run, and not that many female fish with eggs were included in the sample.

Early in the run is when the healthiest fish return. No fish were sampled at other times during the run(s).

Pink and Silver salmon are a very important part of the subsistence diet. These runs started after the sampling period ended; therefore, no samples were obtained. (Pink salmon start mid-July. Silver salmon runs vary throughout Cook Inlet;

however, many return to streams between mid-August and December.)  
The halibut sample size was  $\leq 24$  inches. In contrast, halibut typically caught for food are much larger than 24 inches. In addition, female halibut are the larger of the genders.

What are the potential effects on human contaminant exposures to foods that have been preserved (such as fermented eggs, smoking, salting, dried and canned).

There are several important subsistence foods that were not included in the Cook Inlet results. These include seal, muktuk (from Nome and other places), crab and Silver Salmon. Any discussion should indicate that other foods, including these, are in the diet. Additionally, what can be said about contaminants in these foods?

How to "neutralize" contaminants.

Parts to avoid. For example, provide information about what internal organs bioaccumulate.

What are preparation and cooking methods that would reduce contaminant exposure?

From a contaminant point-of-view, are there species or body parts which should be avoided based on the time of year?

What are the potential relationships between toxin exposures in subsistence foods and the apparent high incidence of tumors in people living on the Kenai Peninsula? Provide information regarding whether a contaminant causes cancer in humans versus whether information is only available from animal studies.

Sample were collected several months prior to the subsistence harvest. From this what can be said about contaminants in foods that are harvested?

Sample were prepared by mixing up the entire fish (head, skin, guts, everything). However, the fish is not eaten this way. The entire fish is eaten, but different parts at different times. And, the different parts are prepared differently. From this what can be said about exposures experienced by people consuming the fish?

What is the effect of different preparation methods on the level of contamination?

## EXPOSURES:

In addition to providing tables with ingestion rates shown in ranges, include diet exposure analyses using harvest data as a surrogate for ingestion rate. Specifically, use recent harvest information but remove any identifier information. In other words, remove any information which would place focus on any particular Village or Tribe. This can be accomplished by averaging all the data together and then presenting it as "average Lower Cook Inlet" information (or other appropriate description).

Subsistence harvesting begins in June for some species or Tribes, but occurs all year for others.

During harvest some individuals may consume large amounts of fresh food. For example, during the subsistence harvest consumption of King Salmon one person estimated consumption could be as much as twenty pounds per week. While during the summer King Salmon may consumed at two pounds per week. Therefore, for this person a hundred pounds of salmon could be consumed in June compared to ten pounds in January. Consumption patterns vary from person to person and from Tribe to Tribe. However, it can be said that salmon are harvested and eaten year-round. Salmon are prepared many different ways. All the body parts are eaten, but all parts are not necessarily prepared or preserved in the same fashion.

On the consumption table, show salmon consumption in increments of 20 pounds. Make increments smaller in the middle of the range and larger on the upper and lower ends.

Additional tables are needed for short duration, high level exposures. For example, consumption of 80-100 pounds in a month.

The subsistence harvest period for snails is March through May. In this period, snails are eaten every day. During the rest of the year, very little or none is eaten.

Octopus are harvested and eaten year-round.

Regarding the various species of fish and shellfish: Sea bass is also called Black Bass. This is not a migratory fish. Cod is also called Gray Cod (but there are also black cod, tom cod and ling cod). The mussels and clams are not adequately identified on lists previously shown to the Tribes. Specific names should be given to “mussel” and “large clam”, and these should be distinguished from the other shellfish which are listed as “blue mussel”, “butter clam” and “steamer clam”. Are all of these shellfish different species or just different sizes? Results for all of the species should be shown as one value regardless of the size. In other words, people eat large and small clams; therefore, when it is the same species, group these data together.

Regarding “kelp” and “seaweed”: these also need more specific identification.

#### TOXICITY:

Toxicity information is needed for short duration, high dose exposures for both adults and children (for example, ingestion may be higher during a harvest).

Toxicity information is needed when the sum of the hazard indexes or the hazard index, itself, is greater the 1.0. This is important when a mixed seafood diet and exposure to mixtures is considered.

## UNCERTAINTIES:

It is very important to point out in this report that samples were taken only once, and that sometimes the samples were not what is collected for subsistence foods. Also, that the presence of these contaminants from year to year or season to season was not determined. This report should not imply that “real” exposures or “real” risks are accurately represented. The report should not make people fearful of their subsistence foods, it should only suggest where future studies or efforts could be focused.

Pounds of consumption during a month or a year vary with availability of the food.

Pounds (per person) of harvest may not represent pound per person eaten. Pounds per person eaten could be higher or lower.

Samples of Pink Salmon and Silver Salmon were not collected in this study. But, information is needed. How can the salmon results in this study be used to make educated judgements about what contaminants might be in Pink and Silver Salmon? Would comparisons of body size, fat content, migratory pattern and diet help put Pink Salmon and Silver Salmon into a perspective?

Other important aquatic components of the subsistence include diet seal, seal oil, seal lion and beluga (see also, “Special Concerns and Questions” section of these notes).

Only small halibut were collected for this study. However, much larger fish are actually harvested and eaten. In particular, female halibut are very large and long-lived, and these are eaten by Cook Inlet Tribes.

## COMPARISONS:

Compare to store bought foods. This should include meats, produce and seafoods. If possible, a quantitative comparison is desirable. This can be accomplished by putting the information in a table and would make comparisons easier. If a quantitative comparison is not possible, please provide an explanation. Also include information about bottled water (if specific analyses are not available, then provide the FDA or EPA guidelines for bottled water).

Compare to foods with higher and foods with lower contaminant concentrations. Include subsistence foods in this comparison. Indicate whether the subsistence foods were collected by a Tribal person, and whether or not it was during a subsistence harvest.

Compare with lower-48 subsistence foods including Puget Sound salmon, halibut in Oregon and Columbia River salmon. Where specific subsistence food info is not available, look for any info about seafoods collected from the Oregon-California border north to Alaska.

Contact Mike Bradley, Alaska Native Board (907)562-6006, regarding the Canadian program called Contaminants Program for Indigenous People.

Provide information from studies which have analyzed various organs and parts of fish and shellfish.

#### POTENTIAL SOURCES OF COMPARATIVE INFORMATION:

EVOS database.

Elmendorf AFB regarding needleback fish.

Ft. Richardson, Eagle River area, old firing range (water from this area drains to the Knik Arm where there have been duck die-offs).

USFW studies of contaminants in halibut stomach contents and seabird prey species (many of these species are the foods of seafood species included in the Cook Inlet study).

Studies of cannery workers and health hazards resulting from exposures to toxins in fish (this may include skin reactions as well as other health responses).

#### POTENTIAL TRIBAL USES:

There is an epidemiology study being conducted for Alaska. The Cook Inlet report could help focus the efforts of the epidemiology study.

Give all information collected during the telephone conference calls and other meetings back to the Tribes for their own uses.